COMSCINST **4740.1D w/CH-1**	**COG CODE** **PM5**	DATE **26 OCT 1977**

DEPARTMENT OF THE NAVY
COMMANDER MILITARY SEALIFT COMMAND
WASHINGTON NAVY YARD BLDG 210
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WASHINGTON DC 20398-5540

COMSCINST 4740.1D
M-32
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COMSC INSTRUCTION 4740.1D

Subj: MSC ocean tow procedure

Ref: (a) COMSCINST 4622.9

Encl: (1) Check-off List for MSC Ocean Tows
(2) Check-off List for MSC Ocean Cargo Tows

1. Purpose. To establish procedures for the accomplishment of ocean tows by the Military Sealift Command, excluding T-ATF's assigned to Fleet Operational Commanders.

2. Cancellation. COMSC Instruction 4740.1C.

3. Definition. As used herein, the term "ocean tow" is defined as any tow plying the waters to the seaward of the inland waters of the world. Inland waters include rivers, harbors, bays, sounds, lakes, canals, or other water bodies not contiguous with the international sea lanes of the world. The voyage of any tow upon the seas which requires passage through any of the aforementioned inland water bodies as an integral part of the voyage, shall constitute an ocean tow. The voyage of a tow upon any of the recognized intracoastal waterway systems of the U.S. which requires passage upon the seas as a integral part of the voyage, does not constitute an ocean tow.

4. Responsibility of COMSC. It is the responsibility of COMSC or his representative to provide towing vessels for the accomplishment of all ocean tows presented as a requirement as a requirement by the shipper services. It is also the responsibility of MSC to provide all towing gear necessary for the tow, including but not limited to: lights for the unit to be towed; towing bridle; wire; flounder plates.

5. Responsibility of Shipper Services. The shipper services are responsible for the proper preparation of the unit to be towed. This includes seaworthiness of the unit, and the placement of towing bitts, pads, and other necessary fittings on the tow. The shipper services are also responsible for the execution of a check-off list similar to enclosure (1), certifying the material condition of the unit to be towed.

6. Riding Crews. When tows are effected by Government-owned tugs, the activity requiring a riding crew will provide necessary personnel. When a commercial tug is being procured to make the tow and qualified personnel are unavailable, arrangements may be made through COMSC for the contractor to provide a riding crew.

7. Arrangement for Ocean Tows

a. Military Support Tow. When a unit to be used in support of U.S. military projects or forces is offered for towing, it shall be designated a "military support" tow, and MSC area and subarea commanders shall take the following action in the order indicated upon receipt of a request for the accomplishment of such a tow:

(1) Utilize available MSC towing facilities (USS/USNS).

(2) When MSC towing facilities are not available, MSC area and subarea commanders are authorized to represent COMSC in effecting mutually satisfactory arrangements with other agencies of the Department of Defense to obtain suitable towing facilities.

(3) When suitable Department of Defense towing facilities are not available, MSC area and subarea commanders are authorized to contract for commercial tows in accordance with the designation and delegation of authority to MSC Contracting Officers. Any tow exceeding a single voyage shall be accomplished by COMSC unless otherwise directed. Commercial ocean tows for which MSC area and subarea commanders do not have contracting authority will be forwarded to COMSC. In addition to furnishing the information required of the shipper service in paragraph 9, oversea MSC commanders shall provide information to identify local commercial towing facilities capable of accomplishing the tow.

b. Military Aid or Civilian Aid Tows. Requests for accomplishment of tows identified as military or civilian aid will be forwarded to COMSC for accomplishment by commercial means together with the information required of the shipper services by paragraph 9. If commercial towing cannot be arranged, MSC commanders will be directed to employ available MSC, Navy or Army/Air Force facilities, in that order.

8. Commercial Tows

a. Commercial tugs of U.S. or foreign registry may be employed except in U.S. domestic trades as set forth in reference (a) when no cargo is involved (barge(s) empty). When cargo is carried, foreign flag tugs may be employed in foreign trades only when no suitable U.S. flag tugs are available at fair and reasonable rates.

b. On tows contracted for by COMSC or MSC area commanders, certification will be obtained from U.S. Salvage Association, Inc., that tug and equipment as well as tow are capable of performance. Waivers of any requirements or conditions set by U.S. Salvage Association, Inc., will be determined by area commanders. Differences of opinion between area commanders and U.S. Salvage Association, Inc., will be referred to COMSC for decision.

9. Information Required. The following information will be provided the MSC area or subarea commander by the shipper service offering a tow to MSC:

a. Port of departure.

b. Identity of custodian of the tow.

c. Category of tow (military support, military aid, civilian aid, etc.).

d. Name and/or number, brief description of unit(s) to be towed, and commodity, long tons, measurement tons of any cargo.

e. Readiness date for tow.

f. Required delivery date for tow.

g. Destination of tow.

h. Consignee or authority who will take custody of tow upon arrival.

i Number and identity of personnel assigned to ride the tow, if any.

j. Availability of towing gear, such as lights and bridles, to accomplish the tow.

k. Any special consideration, such as minimum acceptable horsepower of the towing vessel or the requirement for an escort/assisting towing vessel, dictated by the nature of the cargo in the towed vessel as stated by the offering shipper service.

10. General. Information provided herein is for guidance only since in the field of ocean towing there exists a very wide range of variables such as seasonal conditions, distances, differences in tugs and ability of contractors which have to be carefully evaluated.

a. Analyzing the Task. In analyzing the tasks preliminary to the selection of tugs, the following points should be considered with a view to avoid the following if practicable:

(1) The employment of large tugs to do work that available and less powerful tugs can do. An estimate of the required towline pull and horsepower of the towing vessel should be the first step.

(2) The employment of small tugs for work beyond their capacity.

(3) The employment of tugs on tasks for which they have insufficient endurance unless arrangements can be made to provision or fuel them en route.

(4) The routing of tugs with large tows over areas where the depth of water is insufficient for the catenary of the hawser. Arrangements should be provided for the shortening of the towline where necessary. Tows are frequently involved in difficulties due to the towline fouling submerged objects.

b. Large Ships. Cargo ships make excellent towing vessels when the revolutions are kept low. Their propellers are much larger than those of tugs and turn at a much lower speed. A good empirical rule for this type of ship is about 5 RPMs for each knot of speed. This slow propeller speed reduces cavitation to a minimum and provides a good steady thrust eliminating surging. To effectively use these vessels, it is recommended that a shot of anchor chain be extended from the towed vessel in order to provide more catenary. The “insurance wires” on the towing vessel and the towed vessel shackled together, plus the shot of chain, provide the on-board means for a very effective tow. The use of large ships for towing should be restricted because of economy reasons.

c. Towline Pull

(1) Though dependent on the characteristics of the propeller, speed and other factors, line pull developed by a towing vessel can be estimated to be roughly equivalent to one ton of towline pull per hundred shaft horsepower.

(2) Since towing deals with large masses in motion, large forces, incident to changes in inertia, may be set up momentarily causing wide variations in the towline pull and breakage of towlines which otherwise might be considered amply strong. Towlines should have a factor of safety of 4-6. On the basis of the above empirical rule, elasticity, either inherent in the materials from which the line is manufactured or in the weight and length of the line, to obtain maximum catenary to dampen instantaneous changes in forces. Elasticity in the towing arrangements is a vital consideration in connection with the strength of the towline. Manila or nylon towlines, having greater stretch than steel before developing full strength, can be shorter and have less ultimate strength than steel wire rope for the same tow.

(3) Towing speed or ability to tow at all, is dependent on sea and weather conditions and nature of the vessels involved as much as upon the SHP of the towing vessel. Forces set up by the weather may easily be of an order equal to or greater than those set up by the towboat. These factors must be considered on the basis of experience and judgment. Often a heavy ship, well loaded down, may be more easily towed and at a faster rate than the same ship in a light

condition. The loaded ship having less area exposed to the wind and a greater "rudder" or "center-board" effect due to deeper draft is usually more easily managed in a wind and seaway.

d. Seakeeping Qualities. Horsepower alone should not govern in selecting tugs for ocean tows. Seakeeping qualities must be appropriate for the mission. The material condition of tugs offered should be evaluated. The draft should be sufficiently deep to insure that the propeller will be well down, not less than 8 ft. for small local tows and up to 16 ft. or more for large tows in rough seas. Propellers should be relatively large and slow turning which most effectively utilize the full power of the engines. Freeboard of tugs should never be less than 2 1/2 ft.

e. Electronic Equipment. Communications equipment adequate to insure immediate contact with the shore or other vessels at all times is a requisite. Voice radio communication between tug and tow is mandatory for manned tows. Radar is highly desirable and in most cases should be required. Other requirements such as gyro compass, loran, and radio direction finding installations should be given plus values in evaluation.

f. Speeds for Towing. The speed at which vessels can be towed is dependent on the configuration and draft of the vessel being towed. An increase in speed may be obtained in the case of a self-propelled vessel where the propellers in the towed vessel are allowed to turn over. The main engine lubrication system must be in operation to prevent bearing failure as the propeller turns. In determining towing speed, the primary factor considered should be the towing hawser, and care should be taken that the towing hawser is not overstressed.

11. Towing Gear. The responsibility for the provision of towing gear necessary for the accomplishment of a tow rests with MSC. However, whenever towing gear is made available by the shipper services, such gear shall be used provided it is in good order and suitable for the tow. Commercial towing vessels usually provide all necessary towing gear in accordance with the towing contract. Navy towing vessels do not normally provide towing gear beyond the end of the towing wire. The fitting of an appropriate bridle to the unit to be towed shall be effected by the cognizant MSC area and subarea commander. Area and subarea commanders shall make arrangements with the operational commander of the towing vessel to provide that sailing orders issued to the towing vessel require the commanding officer to deliver all gear procured by MSC to the nearest naval supply activity after delivery of the tow for ultimate transshipment to the MSC area or subarea commander arranging the tow.

12 Execution of Check-Off List. A check-off list, in the format of enclosure (1), shall be furnished to the shipper service having cognizance over the unit to be towed for execution. Copies of this check-off list shall be distributed as follows:

a. MSC or Navy Tug. Executed in quadruplicate by the appropriate shipper service and delivered to the commanding officer or master of the tug upon reporting for tow. The commanding officer or master will retain the original and will return two signed copies to the shipper, one of which will be forwarded to the consignee. One signed copy will be furnished the MSC commander arranging the tow by the commanding officer or master of the tug. Upon delivery of the towed unit, the receiving activity to endorse the original list which will be retained onboard.

b. Commercial Tug. Executed in duplicate by shipper service; original and one copy furnished the MSC commander having cognizance over the towing arrangements. The master of a commercial tug will be required to acknowledge receipt of the tow as prescribed by the acknowledgment of accomplishment of a tow shall be honored and a statement of the condition of the barge and cargo on delivery shall be appended thereto.

13. Acceptability of Tow. The final authority for the acceptability of a unit to be towed rests with the commanding officer or master of the towing vessel. Any conditions not to the satisfaction of the commanding officer or master shall be rectified by the responsible activity. (Any conditions noted which, in the opinion of the shipper service, do not require correction will be referred to the local MSC command for consideration. Differences of opinion on the acceptability of a tow to be accomplished by commercial means which cannot be satisfactorily resolved locally shall be referred to COMSC.)

14. Reporting Procedure

a. The MSC activity contracting for a commercial tow will advise the area or subarea commander(s) concerned of the arrangements made immediately upon completion of negotiations. COMSC will be an addressee when not the contracting authority.

b. Area and subarea commanders shall keep COMSC, and the area or subarea commander(s) along the route of tow advised of progress of arrangements made to accomplish tows with Department of Defense or commercial facilities.

c. Upon departure of a tow which has been arranged by MSC, the cognizant MSC area or subarea commander shall submit a report (MSC Report 4740-1) by message, or speedletter if time permits, action to COMSC and information to MSC subordinate commands along the route of tow. This report should include the name of the towing vessel, sponsor, identity of the tow(s), departure port and date, speed of advance (of commercial tugs only), destination and estimated date of arrival at destination, and any applicable unusual information.

d. The area or subarea commander having jurisdiction over the port of destination shall report arrival and final delivery of the tow by message to COMSC and the area or subarea commander where tow originated. The action addressee will be the activity administering the towage contract. This report (MSC Report 4740-2) shall include any exception to condition of tow and information of any casualty encountered en route.

e. Where it is apparent that a commercial tow, arranged by MSC will take longer than four days to complete; area and subarea commanders having jurisdiction shall obtain progress reports from the contractor and issue a SITREP on the tow at least every fourth day, action to COMSC and information to MSC subordinate commands along the route of the tow and to bureaus and commands concerned.

15. MSC Ocean Cargo Tows. A modified procedure is applicable to the routine transportation of cargo by barge conducted solely within the boundaries of the area of responsibility of an MSC area or subarea commander. Enclosure (2) shall be executed as a combined reporting procedure prescribed by paragraph 14, a monthly summary of tows (MSC Report 4740-5) shall be submitted to COMSC and, if tows are arranged by an activity subordinate to an area commander, to COMSC via the cognizant area commander. (Area and subarea commanders shall establish local control and reporting procedures adequate to assure the safety of lives and property and protection of Government interest.) Casualties to tugs or tows shall be reported to COMSC expeditiously when occurring. The monthly summary shall include the following information concerning each tow:

a. Identity of towing vessel and barges towed.

b. Point of origin and destination of tow.

16. Reports. The following MSC Report Control Symbols are assigned: MSC 4740-1, MSC 4740-2, MSC 4740-5.

/S/
J.D. JOHNSON

Distribution:
SNDL 41B (MSC Area Commanders) (50)
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Authenticated:
Nancy H. Barr
NANCY H. BARR
Directives Control

Check-Off List for MSC Ocean Tows

Date .....

Unit towed (Name of No.) ....

1. General characteristics:

Length Width .....Draft .....Tonage .....
Rudder, Skeg.....Lights.....
Are provisions for comfort and safety of crew ample? .....
Have crew members been indoctrinated in safety and emergency procedures?.....
Have crew members adequate security clearance, if necessary? .....
Communication devices .....
Communication personnel.....

2. Cargo:

.....Type .....Is tow overloaded? .....
.....In proper trim?.....Cargo secured?.....
.....Would cargo help towing qualities, particularly liquids? .....
.....Safety orders and devices.....

3. Towing Gear: (The following questions do not pertain to the design of the towing gear, only its apparent condition)

.....Are towing pads and bitts strong enough?.....
.....Is bridle of sufficient strength? .....
.....Size, type, and length of bridle .....
.....Are shackles of proper size?.....Size.....
.....Will bridle chafe unduly? .....
.....Are connecting or flounder plates satisfactory? .....
.....Can bridle be retrieved?.....
.....Facilities for anchoring tow.....

4. Navigational lights and fog devices:

Are proper lights and fog devices on board and in working order?.....

5. Speed:

Is there a limiting speed? .....
What is safe speed for tow?.....

6. Fittings:

Are hatches, vents, and deck fittings secured? .....
Is rudder in amidships position and securely locked.....
Is propeller shaft locked to prevent rotation? .....
If propellers have been removed, are stern tube packing glands set to prevent flooding?.....
Are all bilges and normally dry compartments free of oil or water? .....

7. Seaworthiness:

Has hull been inspected to best of ability?.....
Has representative of bureau having technical cognizance over the equipment approval the tow?.....
The inspection should include, but not be limited to the following:

a. Drain piping that originate above the waterline and terminated outboard below the waterlines; inspect piping where it runs below decks.
b. Positive lock of propulsion shafting and rudder.
c. All normally dry compartments.
d. All bilges to ensure freedom from water and oil.
e. All equipment properly secured for rough seas.
f. Stern tube packing glands properly set and lock nutted to prevent backing off and stern tube leaking.
g. All sea chests and sea valves.
h. All soft patches or possible suspect areas.

8. Flooding Alarm:

A flooding alarm is required? .....
Has been installed?.....
Is operating properly?.....

.....
Representative of the Shipper Service

I find the above described tow in a satisfactory condition for towing and hereby assume responsibility for delivery to the port of destination prescribed in my sailing orders.

.....
Commanding Officer of the towing vessel

Date.....

FIRST ENDORSEMENT

From: (Receiving activity.....
To: (C.O. of Towing Vessel) .....

1. Received custody of the above described tow in (damaged/undamaged) condition with details listed below: (Omit minor damage caused by normal operations.)

UNIT .....

a.
b.
c.

Date .....

CHECK-OFF LIST FOR MSC OCEAN CARGO TOWS

Unit towed (Name or No.).....

1. General Characteristics:

Unit		.....	.....	
Length		.....	.....	.....
Width		.....	.....	.....
Draft:	Fwd	.....	.....	.....
	Aft	.....	.....	.....

2. Towing gear (condition)

Towing pads and bitts strong enough

....

Bridle of sufficient strength

....

Bridle:	Size	.....	.....	.....
	Type	.....	.....	.....
	Length	.....	.....	.....
Shackles:	Size	.....	.....	.....
	Type	.....	.....	.....

Will bridle chafe unduly?

....

Are connecting flounder plates satisfactory?

....

Can bridle be retrieved?

....

Facilities for anchoring?

....

3. Navigational lights and fog devices:

Are proper lights and fog devices on board and in working order?

....

4. Speed:

Is there a limiting speed? .....
What is safe speed for tow?.....

5. Fittings:

Hatches, vents and deck fittings secured?
....
Are flooding alarms installed?
....
Is ship ballasted to optimum trim?
....

6. Seaworthiness:

Has hull been inspected to best of ability?
....
Has representative of bureau having technical cognizance over the equipment approved of the tow?.....

.....
Representative of MSC

7. Cargo:

Type	.....	.....	.....
Is tow overloaded?	.....	.....	.....
In proper trim?	.....	.....	.....
Cargo secured?	.....	.....	.....
Would cargo help towing qualities, particularly liquids, safety orders and devices?	.....	.....	.....

.....
Representative of Shipper Service

I find the above described tow in a satisfactory condition for towing and hereby assume responsibility for delivery to the port of destination prescribed in my sailing orders.

.....
Commanding Officer/Master of the towing vessel

Date .....

FIRST ENDORSEMENT

From: (Receiving activity).....
(Master/CO Towing Vessel) .....

Subj: Receipt for Delivery of Cargo and Barges

1. This letter will be considered as a consignee's certificate of delivery for all cargo delivered as being received in apparent (good/bad) condition.

2. Above units were received in (damaged/undamaged) condition with details listed below: (Omit minor damage caused by normal operations.)

UNIT	UNIT	UNIT .....
a.	a.	a.
b.	b.	b.
c.	c.	c.